Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2014/2015

COURSE NAME	:	QUANTITATIVE TECHNIQUES FOR REAL ESTATE
COURSE CODE	:	BPE 44303
PROGRAMME	:	3 BPE
EXAMINATION DATE	:	JUNE 2015 / JULY 2015
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

Q1 Measure of central tendency (MCT) and measure of dispersion (MD) are important instruments to describe variability in a dataset.

(a) In an experiment, 50 people were asked to estimate the length of a rod to the nearest centimeter. The results were recorded.

Table Q1: Rod length

Length (cm)	20	21	22	23	24	25	26	27	28	29
Frequency	0	4	6	7	9	10	7	5	2	0

Determine the standard deviation for the above case study.

(10 marks)

(b) In a second experiment, another 50 people were asked to estimate the length of the same rod. The most common estimate is 23 cm. The range of the estimates is 13 cm.

Contrast your findings between these two experiments using MCT and MD.

(15 marks)

Q2 A common application of multiple regression analysis is residential property value assessment. In this study, the objective is to estimate (or predict) the value of all Malaysian residential house price, y, based on certain descriptive information. The hedonistic model, which account for 98.7% variation in the house price, is applied to future residential market and estimates of the economic scenarios were produced. The model is as follows:

$$HPI = - 8.423 + 0.0127\ RPCI + 3.579\ UR + 0.00088\ TL + 0.00372\ CI$$
$$R^2 = 0.9869$$

Where;
HPI = House Price Index
RPCI = Per Capita Income
UR = Unemployment Rate
TL = Total Loans to housing
CI = KLSE Composite Index

(a) Analyze the hedonic model through the strength of presented coefficients.

(10 marks)

(b) Propose the statement of null and alternative hypothesis for the above case study.

(5 marks)

(c) Interpret the function of R^2 and how it reflects the above HPI case study.

(10 marks)

Q3 An observation that is substantially different can make a large difference in the results of regression analysis. Outliers occur very frequently in real data, and they often go unnoticed.

(a) Determine outliers through correlation slope.

(5 marks)

(b) Referring to regression and correlation analysis,

Discuss:

(i) The differences.

(5 marks)

(ii) The relationship.

(5 marks)

(c) Illustrate the possibility of outliers through standard deviation determination (small and large values) in normal distribution graphs.

(10 marks)

Q4 In statistics, regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables.

(a) Discuss using graphical illustration the purpose of ordinary least squares (OLS) in regression analysis.

(10 marks)

(b) Explain the homoscedasticity assumption in regression analysis.

(5 marks)

(c) Describe **FIVE (5)** OLS estimator assumptions.

(10 marks)

- END OF QUESTIONS -